

# DISTRIBUTION LINE EARTHING EQUIPMENT CATALOGUE



**PENTA**  
ELECTRICAL SAFETY PRODUCTS

Your life,  
**Our work.**



## LINE END CLAMP

PENTA Electrical Safety Products offer a broad range of Line End clamps to suit the requirements of ENA Technical Specification 41-21 as well as for export markets. The Distribution Line range of portable earthing equipment is suitable for temporary earthing of conductors up to 66kV.

**S9B LINE END CLAMP**

The S9B Line End clamp is designed to hook over the conductor and be self-supporting whilst the operating screw is tightened or loosened. S9B clamps are available with a short tapered, long tapered, ring type or ISO style operating screw and are suitable for a conductor range between 6.3mm and 38mm diameter.

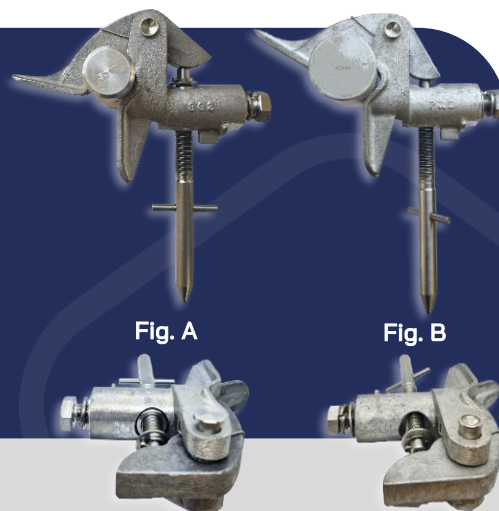
**Product Benefits**

- Short Circuit tested to 17.5kA for 2 seconds (25kA/1s)
- Robust construction for extended service life
- Proven service record used by ESI for over 50 years
- Lightweight and excellent corrosion resistance

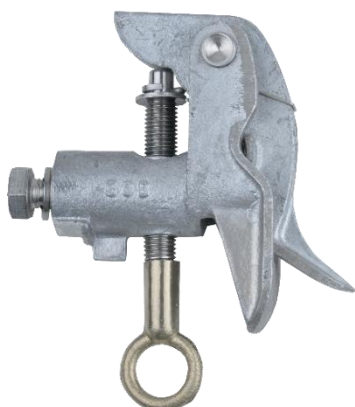
**/ S9BS SHORT TAPER LINE END CLAMP**

Hooks over conductor, with spring-loaded jaw for ease of installation. Compatible with PB331, P331, CEA/ ESI-S2 and S9D/ ESI-S1 Operating Sockets.

Alternative S9BS with restricting collar also available.

**/ TECHNICAL SPECIFICATION**

Reference	Catalogue Number	Figure	Clamping Diameter	Features	Short Circuit Rating	Operating Screw	Weight
FA3218-A	383913	A	3- 27mm	With Collar	17.5kA/2s	Short Taper	0.58kg
FA3218-B	383914	B	3-38mm	Without Collar			0.55kg

**/ S9B RING TYPE LINE END CLAMP**

Ring type operating screw allows application to conductor whilst holding the Operating Pole at an angle to the Line End Clamp. Compatible with RT/TL Socket Assembly, RT Operating Socket and Hook Type Socket.

Reference	Catalogue Number	Clamping Diameter	Short Circuit Rating	Operating Screw	Weight
FA3213-A	383911	3-27mm	17.5kA/2s	Ring Type	0.52kg

**/ S9BS LONG HANDLE LINE END CLAMP**

Insulated Handle to allow hand application upon LV Distribution Lines.

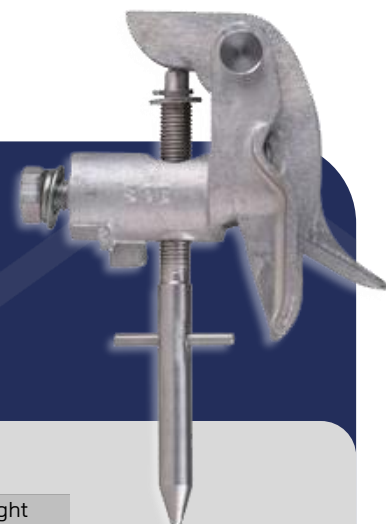
Reference	Catalogue Number	Clamping Diameter	Short Circuit Rating	Operating Screw	Weight
FA3344-A	383916	3-27mm	17.5kA/2s	Insulated Handle	0.58kg

**/ S9B DLE CEB ASSEMBLY**

Serrated jaw profile to provide better contact upon weathered conductor.

**/ TECHNICAL SPECIFICATION**

Reference	Catalogue Number	Clamping Diameter	Short Circuit Rating	Operating Screw	Weight
EFD-13218/3	389670	3-27mm	17.5kA/2s	Short Taper	0.56kg

**/ CE62 SNAP-ON LINE END CLAMP**

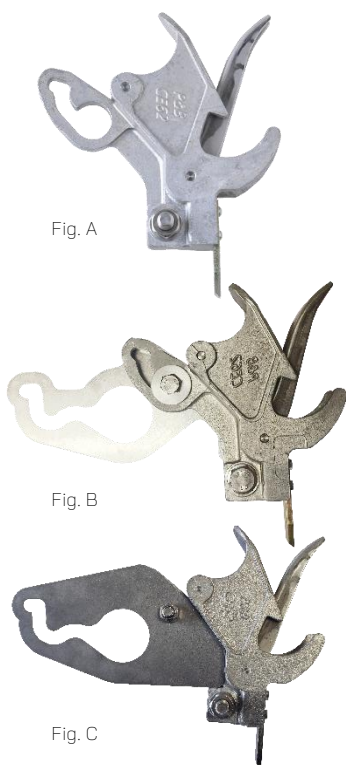
Sprung loaded jaw snaps onto conductor for easy connection. The CE62 Snap-on clamp is made from lightweight robust aluminium casting with stainless steel fittings.

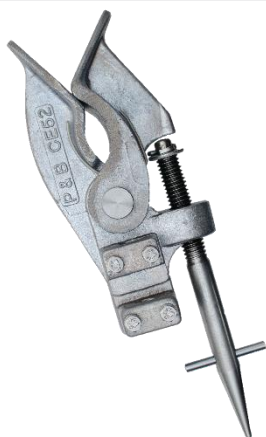
Reference	Catalogue Number	Figure	Clamping Diameter	Short Circuit Rating	Operating Screw	Weight
EFD-16733 (Without Removal Plate)	383237	A	4-20mm	12.5kA/1s	DH1A or Applicator Head	0.44kg
EFD-16733/1 (With Removal Plate)	383238	B				0.54kg
EFD-16733/2 (With Special Removal Plate)	392973	C				0.62kg

Fig. A

Fig. B

Fig. C





### / CE52/A LINE END CLAMP

Push-on aluminium Line End clamp with stainless steel fittings.

Reference	Application	Operating Screw	Clamping Diameter
EFP-16704	For use up to 400kV	Long taper	13mm to 42mm

Short Circuit Rating	Weight
8.9 kA/1s	0.69kg

Catalogue Number	383278
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### / CE5 LINE END CLAMP

Push-on Line End clamp. Gunmetal with tin plated finish and high quality stainless steel fittings.

Reference	Material	Operating Screw	Clamping Diameter	Short Circuit Rating
EFP-10911/2	Bronze	Short taper	12.7mm – 25.4mm	12kA/1s

Catalogue Number	390086
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### / CE36 LINE END CLAMP

Reference	Catalogue Number
FA3724-A	391102



### EARTH END CLAMP

The PENTA Electrical Safety Products Distribution Line range of portable earthing equipment is suitable for temporary earthing of conductors up to 66kV and suits the requirements of ENA TS 41-21 as well as for export markets.

#### S9A EARTH END CLAMPS

The S9A Earth End Clamp (sometimes referred to as grounding clamp) is robust and will withstand a reasonable amount of rough handling. It is suitable for application to aluminium or copper flat bar, round conductor or earth rods.

The S9A is also available with long insulated handles, hand-applied cross pins, and ring or tapered style-operating screws.

#### Product Benefits

- Tested to 17.5kA for 2 seconds (25kA/1s)
- Solid construction to give extended service
- Proven service record used by ESI for over 40 years
- Lightweight and good corrosion resistance
- No plated components



#### / S9A SHORT HANDLE EARTH END

Knurled insulated handle for ease of application and rocker contact block.

Reference	Catalogue Number	Clamping Diameter	Short Circuit Rating	Operating Screw	Weight
FA1076-F	383865	6.4 – 17mm dia.	24.75kA/ 1s	Insulated Handle	0.46kg



#### / S9A CLAMP WITH HARDENED TIP

Knurled insulated handle for ease of application and hardened steel tip.

Reference	Catalogue Number	Clamping Diameter	Short Circuit Rating	Operating Screw	Weight
SK081008-0/1	384447	Up to 20mm thick 6.4 - 20mm dia.	17.5kA/ 2s	Insulated Handle	0.46kg





## DISTRIBUTION LINE EARTHING EQUIPMENT

### EARTH END CLAMP

#### CE10 CROSS ARM/STEELWORK CLAMPS

The type CE10 clamp is suitable for steelwork/ cross arms up to 13mm thick.

Manufactured from a lightweight aluminium alloy, they have a stainless steel operating screw fitted with a hardened steel tip to penetrate painted and non-conductive surfaces, to ensure a low resistance earth connection. Also available is a black PVC protective shroud to protect the CE10/A clamp when painting etc.

#### Product Benefits

- Lightweight
- Excellent corrosion resistance
- Solid construction for extended service



#### / CE10 CROSS ARM/STEELWORK CLAMP

Hardened Steel Tip penetrates non-conductive surfaces for a strong, low resistance connection.

Reference	Catalogue Number	Clamping Diameter	Weight
EFD-11764/2	383234	0 - 13mm thick	0.45kg



#### / S9A RING TYPE STEELWORK/EARTH END

Hardened Steel Tip penetrates non-conductive surfaces for a strong, low resistance connection resistance connection.

Reference	Clamping Diameter	Short Circuit Rating	Operating Screw	Weight
FA3496-A	Up to 20mm thick 6.4-20mm diameter	17.5kA/2s	Ring Type	0.45kg

Catalogue Number	393133
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#### / S9A/A/HCP/RB/135H CLAMP

Fitted with rocker block and tommy bar op-screw for hand operation.



#### / TECHNICAL SPECIFICATION

Reference	Catalogue Number	Clamping Diameter	Short Circuit Rating	Weight
FA1076-A	383863	6.4 – 17mm dia.	24.75kA/ 1s	0.38kg



## DISTRIBUTION LINE EARTHING EQUIPMENT

### EARTH END CLAMP



### / S9A LONG TAPER STEELWORK/EARTH END CLAMP

Hardened Steel Tip penetrates non-conductive surfaces for a Strong, low resistance connection.

Reference	Clamping Diameter	Short Circuit Rating	Operating Screw	Weight
EFP-11076/8	6.4-20mm diameter Up to 20mm thick bar	17.5kA/2s	Long Taper	0.40kg

Catalogue Number	390098
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## DISTRIBUTION LINE EARTHING EQUIPMENT

### ALUFLEX LEADS

PENTA Electrical Safety Products can supply Aluflex leads in any required length, in a wide range of sizes including specifically for Substation use 150sqmm & 50sqmm according to ENA specification 41-21.

The flexible aluminium earth lead comes with tested and approved compression terminations and stress support springs/sleeves. Leads are used for connecting between a Line End clamp and an Earth End clamp. For use in Substations, Portable Primary Earths always employ 150 sqmm Aluflex cable with a clear pvc sheath. Field Equipment earths employ 50sqmm Arctic orange Aluflex leads, 50 sqmm clear leads are used for the control of induced voltages.

#### Advantages

- Lightweight & flexible
- Fully tested and approved to ENA 41-21 standard
- Less vulnerable to theft than Copper
- Sheath encapsulated within termination
- Substantial reinforcing spring at cable termination
- Single bit compression
- Transparent PVC cover for easy maintenance

### / ALUFLEX LEAD CONFIGURATION PROCESS

\*LEAD STANDARD ENA TS 41-21

#### REQUIRED LENGTH

Cables at any lengths

#### ALUFLEX COLOUR

Choose from Clear, Orange, Blue, Green, or Reflect coloured pvc Aluflex lead

#### REQUIRED TERMINATIONS

We supply variety of different terminations to suite your exact application

#### REQUIRED LINE END CLAMP

Select the Line End Clamps required for your application

#### REQUIRED EARTH END CLAMP

Select the Earth End Clamps required for your application



### / 50sqmm ARCTIC BLUE ALUFLEX LEAD

Contact us regarding your requirement for lead length, terminations, springs, sleeves and length required for 50sqmm Arctic Blue Aluflex Leads.

Reference	Short Circuit Rating	Cont. Current Rating	Weight per meter
Various	8.9kA/1s	150A	0.19kg



## DISTRIBUTION LINE EARTHING EQUIPMENT

### ALUFLEX LEADS



#### / 50sqmm ARCTIC ORANGE ALUFLEX LEAD

Contact us regarding your requirement for lead length, terminations, springs and sleeves for 50sqmm Arctic Orange Aluflex Leads.

Reference	Short Circuit Rating	Cont. Current Rating	Weight per meter
<i>Various</i>	8.9kA/1s	150A	0.19kg

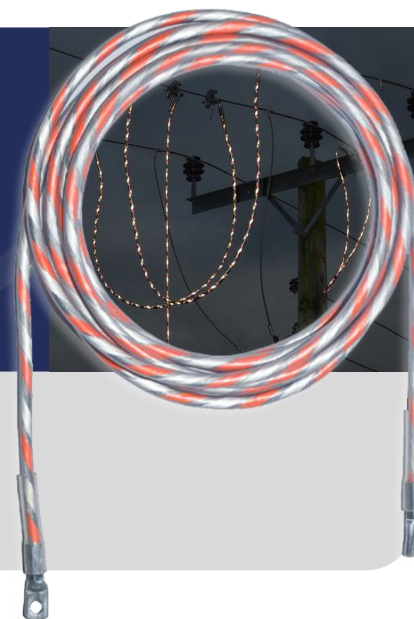
#### / 50sqmm REFLECT ALUFLEX LEAD

NEW

Contact us regarding your requirement for lead length, terminations, springs and sleeves for 50sqmm Reflect Aluflex Leads.

#### / TECHNICAL SPECIFICATION

Reference	Short Circuit Rating	Cont. Current Rating	Weight per meter
<i>Various</i>	8.9kA/1s	150A	0.19kg



#### / 120sqmm ARCTIC BLUE ALUFLEX LEAD

Contact us regarding your requirement for lead length, terminations, springs, sleeves and length required for 120sqmm Arctic Blue Aluflex Leads.

Reference	Short Circuit Rating	Cont. Current Rating	Weight per meter
<i>Various</i>	20kA/1s	300A	0.45kg



#### / 150sqmm ARCTIC BLUE ALUFLEX LEAD

Contact us regarding your requirement for lead length, terminations, springs and sleeves for 150sqmm Arctic Orange Aluflex Lead.

Reference	Short Circuit Rating	Cont. Current Rating	Weight per meter
<i>Various</i>	25kA/1s & 17.5Ka/ 2s	350A	0.600kg





## DISTRIBUTION LINE EARTHING EQUIPMENT

### ALUFLEX LEAD



### / 120sqmm CLEAR ALUFLEX LEAD

Contact us regarding your requirement for lead length, terminations, springs and sleeves for 120sqmm Clear Aluflex Lead.

Reference	Short Circuit Rating	Cont. Current Rating	Weight per meter
<i>Various</i>	20kA/1s	300A	0.45kg



## DISTRIBUTION LINE EARTHING EQUIPMENT

### LEAD TERMINATIONS

The Penta P&B Terminations are manufactured from specially milled and certified material and precision machined in our works, tested rigorously throughout the manufacturing process to ensure quality and performance.

### / PB50 ALU. TERMINATIONS

Suitable for 50sqmm Aluflex cables.



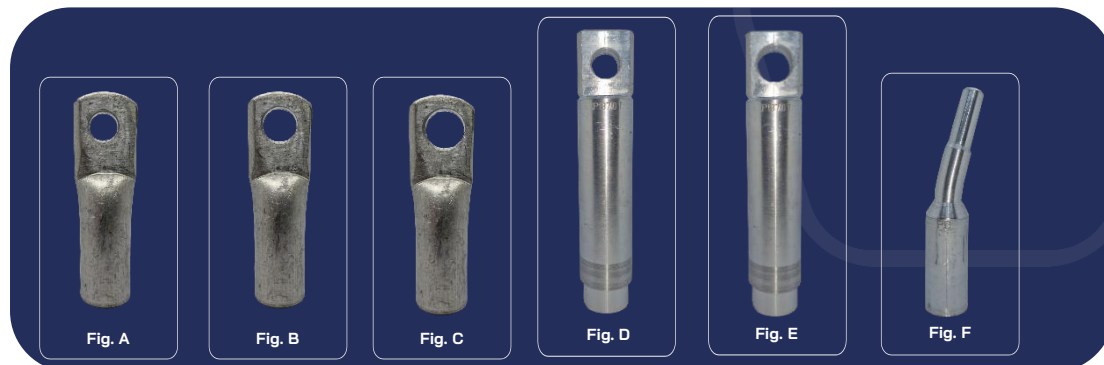
Reference	Description	Figure	Strain Relief Type	Compatible Cable	Weight
<i>EMP-07880/1</i>	PB50 Alu. Termination ø11 Hole	A	50sqmm Strain Relief (6112-01)	50sqmm Aluflex Leads	0.06kg
<i>EMP-07880/2</i>	PB50 Alu. Termination ø12 Hole	B	50sqmm Strain Relief (6112-01)		0.06kg
<i>EMP-07880/3</i>	PB50 Alu. Termination ø13 Hole	C	50sqmm Strain Relief (6112-01)		0.06kg
<i>EMP-07884/1</i>	PB50T Alu. Termination With ø11-Dia Hole	D	50sqmm Tension Spring (EBL-16548)		0.13kg
<i>EMC-07887</i>	PB50S Termination Lug	E	50sqmm Strain Relief (6112-01)		0.06kg
<i>EMP-07886</i>	PB50F Ferrule Terminal	F	50sqmm Strain Relief (6112-01)		0.03kg

	Catalogue Number
PB50 Alu. Termination ø11 Hole	383508
PB50 Alu. Termination ø12 Hole	383509
PB50 Alu. Termination ø13 Hole	383510
PB50T Alu. Termination With ø11-Dia Hole	390355
PB50S Termination Lug	383399
PB50F Ferrule Terminal	383519



## / PB70 ALU. TERMINATIONS

Suitable for 70sqmm Aluflex cables.



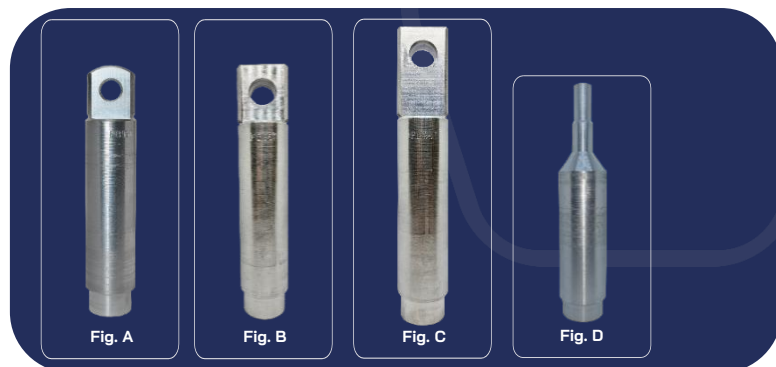
Reference	Description	Figure	Strain Relief Type	Compatible Cable	Weight
EMP-07883/1	PB70 Alu. Termination $\varnothing 11$ Hole	A	50sqmm Strain Relief (6112-01)	70sqmm Aluflex Leads	0.06kg
EMP-07883/2	PB70 Alu. Termination $\varnothing 12$ Hole	B	70sqmm Strain Relief (EBT-16112)		0.06kg
EMP-07883/3	PB70 Alu. Termination $\varnothing 13.25$ Hole	C	70sqmm Strain Relief (EBT-16112)		0.06kg
EMP-07892/1	PB70T Alu. Termination $\varnothing 11$ Hole	D	50sqmm Tension Spring (EBL-16548)		0.13kg
EMP-07892	PB70T Alu. Termination With $\varnothing 13$ Hole	E	150sqmm Tension Spring (EBP-14714)		0.13kg
EMP-07893	PB70F Alu. Ferrule Termination	F	50sqmm Strain Relief (6112-01)		0.03kg

	Catalogue Number
PB50 Alu. Termination $\varnothing 11$ Hole	383515
PB50 Alu. Termination $\varnothing 12$ Hole	390353
PB50 Alu. Termination $\varnothing 13$ Hole	393031
PB50T Alu. Termination With $\varnothing 11$ -Dia Hole	390359
PB50S Termination Lug	393033
PB50F Ferrule Terminal	383523



## / PB95T ALU. TERMINATION

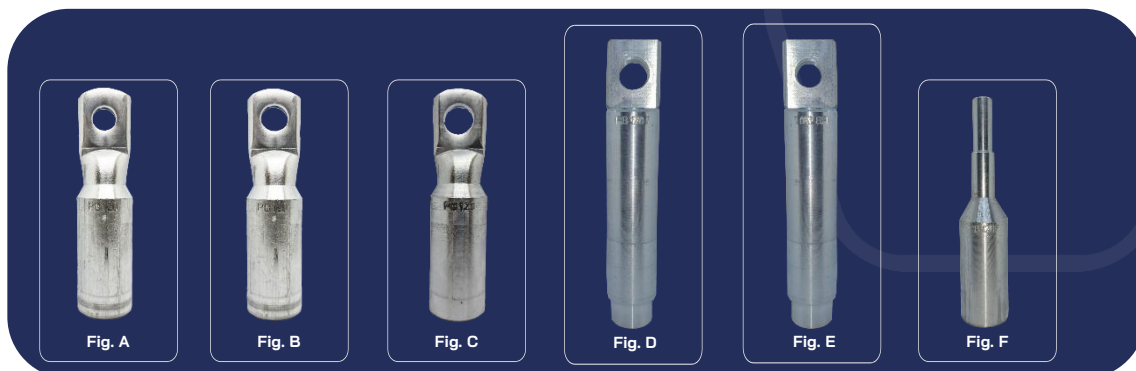
Suitable for 95sqmm Aluflex Cable.



Reference	Catalogue Number	Description	Figure	Strain Relief Type	Compatible Cable	Weight
EMP-07889/1	383521	PB95T Alu. Termination With $\varnothing 11$ Hole	A	150sqmm Tension Spring (EBP-14714)	95sqmm Aluflex Leads	0.13kg
EMP-07889	383520	PB95T Alu. Termination With $\varnothing 13$ Hole	B	150sqmm Tension Spring (EBP-14714)		0.13kg
EMP-07889/2	390357	PB95T Alu. Termination With $\varnothing 13$ Hole -Long Palm	C	150sqmm Tension Spring (EBP-14714)		0.13kg
EMP-07897	383525	PB95F Ferrule Termination	D	150sqmm Tension Spring (EBP-14714)		0.13kg

## / PB120 ALU. TERMINATION

Suitable for 120sqmm Aluflex Cable.



Reference	Catalogue Number	Description	Figure	Strain Relief Type	Compatible Cable	Weight
EMP-07881/1	383511	PB120 Alu. Termination $\varnothing 11$ Hole	A	120sqmm Strain Relief (6112-02)	120sqmm Aluflex Leads	0.06kg
EMP-07881/2	390352	PB120 Alu. Termination $\varnothing 12$ Hole	B	120sqmm Strain Relief (6112-02)		0.06kg
EMP-07881/3	383512	PB120 Alu. Termination $\varnothing 13.25$ Hole	C	120sqmm Strain Relief (6112-02)		0.06kg
EMP-07885/1	383518	PB120T Alu. Termination with $\varnothing 11$ Hole	D	120sqmm Support Springs (4906)		0.13kg
EMP-07885	383517	PB120T Alu. Termination with $\varnothing 13$ Hole	E	120sqmm Support Springs (4906)		0.13kg
EMP-07891	383522	PB120F Ferrule Termination	F	120sqmm Strain Relief (6112-02)		0.06kg



## DISTRIBUTION LINE EARTHING EQUIPMENT

### LEAD TERMINATIONS

#### / PB150T ALU. TERMINATION: ESI-T1

Suitable for 150sqmm Aluflex Cable.



Reference	Catalogue Number	Description	Figure	Strain Relief Type	Compatible Cable	Weight
EMP-07882	383513	PB150T Alu. Termination : ESI-T1	A	150sqmm Tension Spring (EBP-14714)	150sqmm Aluflex Leads	0.13kg
EMP-07882/2	383514	SP150 Termination - Extra Long Palm	B	150sqmm Tension Spring (EBP-14714)		0.13kg

**/ 50sqmm STRAIN RELIEF**

Suitable for 50sqmm Aluflex Cables.



Reference	6112-01
Catalogue Number	381971

**/ 70sqmm STRAIN RELIEF**

Suitable for 70sqmm Aluflex Cables.



Reference	EBT-16112
Catalogue Number	383157

**/ 120sqmm STRAIN RELIEF**

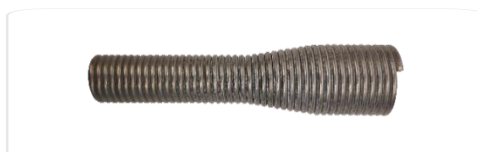
Suitable for 120sqmm Aluflex Cables.



Reference	6112-02
Catalogue Number	381972

**/ 50sqmm TENSION SPRING**

Suitable for 120sqmm Aluflex Cables.



Reference	EBL-16548
Catalogue Number	383076

**/ 120sqmm TENSION SPRING**

Suitable for 120sqmm Aluflex Cables.



Reference	4906
Catalogue Number	381959

**/ 150sqmm TENSION SPRING**

Suitable for 150sqmm Aluflex Cables.



Reference	EBP-14714
Catalogue Number	383102

Note: Short circuit and continuous current data is not quoted for terminations, as the method and quality of a third party compression cannot be guaranteed to replicate our in-house termination process for leads, as per our own type-tested products (see Aluflex Leads section).





## DISTRIBUTION LINE EARTHING EQUIPMENT

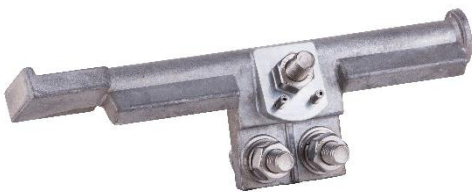
### CLUSTER BAR

The cluster bar is an attachment bolted to the centre of three-conductor clamps and facilitates the parking of the other two-conductor clamps with interconnecting leads, whilst the assembly is fitted or removed from the distribution line.

The Cluster Bar is designed to be attached to the S9B Line End clamp, which then can accommodate two further S9B Clamps and a Cross Arm Clamp if required. This reduces the need to apply clamps individually by lowering the Operating Pole several times.

#### Advantages

- Solid construction for many years' service
- Proven service record used by the ESI for over 40 years
- Used worldwide
- No plated components high-quality stainless-steel fasteners



#### / DLE/CAC CLUSTER BAR ASSEMBLY

Cluster bar assembly for use upon S9B clamp. Suitable for an additional cross-arm clamp with centre cable fixing for up to four leads.

Reference	Catalogue Number	Weight	Max Cable Applied
EFD-16748	383242	1.43kg	4



#### / THREE-WAY CLUSTER BAR

Cluster bar assembly for use upon S9B clamp. Suitable for supporting two additional S9B clamps two phase leads and the earth lead.

Reference	Catalogue Number	Weight	Max Cable Applied
A3214-A	382328	1.38kg	3

As an alternative to the cluster bar, a terminal plate can be specified. There are several types of terminal plates available.



#### / TYPE A TERMINAL PLATE ASSEMBLY

Multi-point aluminium plate, for interconnecting phase leads and down lead. The Type A Terminal Plate Assembly is available with and without a support hook (pictured without hook).

Reference	Catalogue Number	Weight
A3478-B (without hook)	382333	0.99kg
A3478-A (with hook)	388923	1.20kg



## / TYPE B CRUCIFIX TERMINAL PLATE

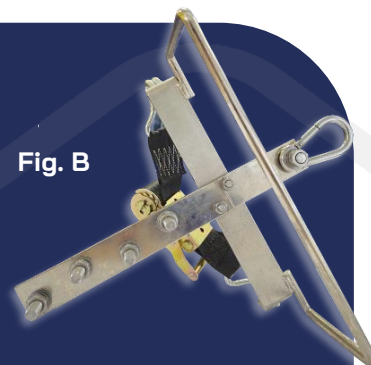
The Type B Crucifix assembly is suitable for mounting to poles using chain or alternatively a ratchet strap. A parking bar is used for supporting, resting and raising the line end clamps before application. Suitable for four leads attachment via M12 stainless steel fasteners.

Hook or Carabine versions available to aid with lifting.



Fig. A

Fig. B



### / TECHNICAL SPECIFICATION

Reference	Catalogue Number	Description	Figure	Weight	Max Cable Applied
EFD-16730	389672	TYPE B CRUCIFIX TERMINAL PLATE WITH CHAIN	A	6.66kg	4
EFD-16730/1	383236	TYPE B CRUCIFIX TERMINAL PLATE WITH STRAP & CARABINE	B		



## / TYPE C TERMINAL PLATE

Aluminium busbar with M12 stainless steel fasteners for attaching leads. With Carabine hook and webbing strap to secure to structure.

Reference	Catalogue Number	Weight	Max Cable Applied
EFD-20030	383243	1.64kg	4



## / TYPE D TERMINAL PLATE

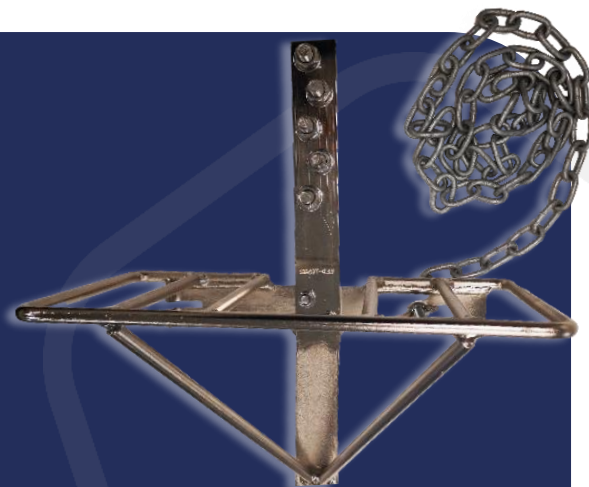
Aluminium busbar with stainless steel M12 fasteners. Heavy-duty ratchet strap for securing to pole or structure. Similar to the Type A terminal plate except with a ratchet strap for secure pole mounting.

Reference	Catalogue Number	Weight	Max Cable Applied
EFD-16737	392974	1.74kg	4



## / CRUCIFIX PLATFORM (21 PATT)

Improved version to Type B Crucifix Terminal Plate suitable for mounting to poles using chain. A parking bar is used for supporting, resting and raising the line end clamps before application. Suitable for five leads attachment via M12 stainless steel fasteners.



### / TECHNICAL SPECIFICATION

Reference	Catalogue Number	Weight	Max Cable Applied
EFD-16795	389699	4.02kg	5



PENTA Electrical Safety Products Earth Rods have a high tensile strength, low carbon steel core, 99.95% pure copper is electrolytically applied and forms a metallurgical bond between the steel core and the copper. This combination makes the rod ideal for deep driving whilst also providing lasting resistance to corrosion. Standard earth rods are manufactured from either 16mm (5/8") or 19mm (3/4") diameter steel core copper bonded rods and are usually supplied in 850mm sections.

Other lengths and diameters are also available.

### Advantages

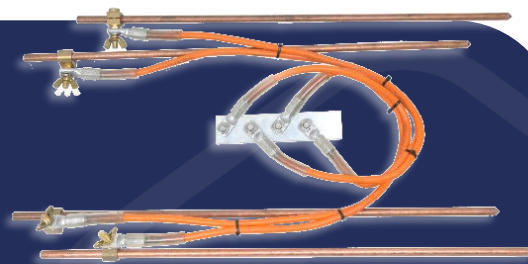
- Lasting resistance to corrosion
- High tensile strength
- Available in standard lengths 850mm
- Copper clad for low resistance
- Other Lengths available (1,000mm and 1,200mm)

## / EARTH NEST KIT

Earths Rods can be used individually or interconnected by 50sqmm Arctic Orange Leads to create a nest. Leads can be attached using S9A Earth End clamps or Split Connectors. Configurations can be fully customised depending on customer requirements.

Kit consisting of four Earthing Rods with Split Connectors, four 1.5m 50sqmm orange Aluflex leads and a multipoint connector.

Bag sold separately.



### / TECHNICAL SPECIFICATION

Reference	Catalogue Number
MISC-00020	393205



### **/ 850MM EARTH ROD STEEL/COPPER**

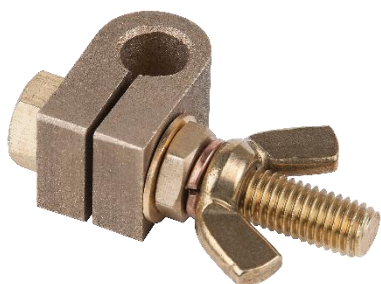
Copper clad steel spiked earth rod 850mm long x 14.3mm O/D. A high tensile strength, low carbon steel core clad with 99.95% pure copper and thickness 0.25mm.

Reference	Catalogue Number
EBD-20070	383052



### **/ 50sqmm ORANGE LEAD 1.50m**

Reference	Catalogue Number
FA3347-C 01.50	393116



### **/ SPLIT CONNECTOR FOR EARTH ROD M12 x 90mm**

Split type brass connector assembly for use with 14.3mm diameter copper clad earth rods.

Reference	Catalogue Number	Weight
EAD-20074	382892	0.09kg



### **/ CONNECTOR ASSEMBLY**

Multi-point aluminium connecting plate assembly for Distribution Line Earthing, with stainless steel fasteners.

Reference	Catalogue Number	Weight
SK140802-0/1	384457	1.49kg



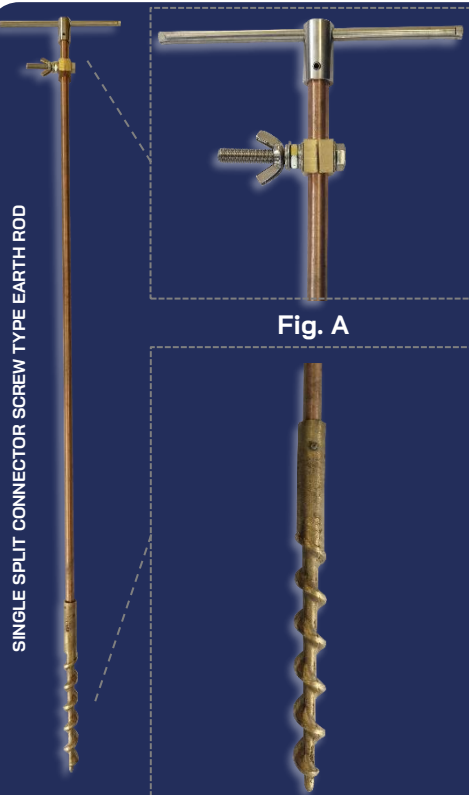


Fig. A

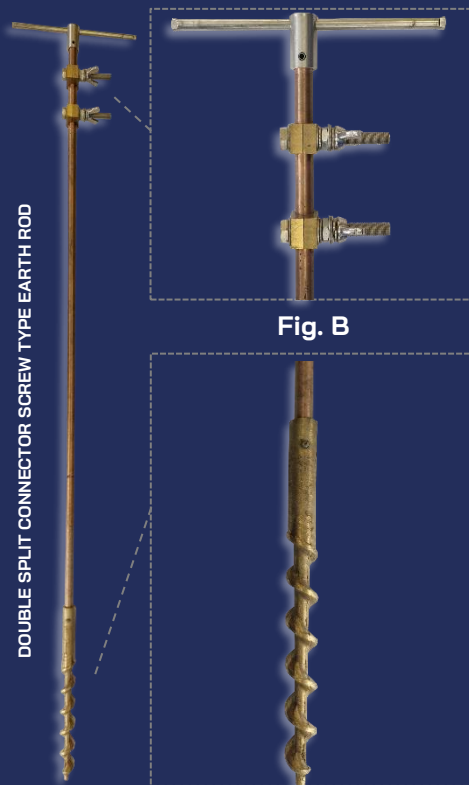


Fig. B

## / 850MM EARTH ROD STEEL/COPPER

The 1.5m Screw Type Earth Rod x 17.2mm diameter copper clad steel core, with stainless steel sliding tommy bar for screwing into the ground. A bronze screw profile casting is pinned to the Earth rod for strength and provides an excellent conductive path to Earth.

Earth rods come pre-fitted with split connectors with two variations:

- Single split connector for nest applications (Fig. A)
- Double split connectors to allow daisy chaining (Fig. B)

Reference	Catalogue Number	Type	Figure
EFD-20137/1	389712	Single Split Connector	A
EFD-20137/2	383244	Double Split Connectors	B





**/ PVC BAG FOR SHORTING KIT**

Carrying bag for shorting cluster with 210 flap with velcro fixing with black nylon webbing shoulder strap.

Reference	Material	Size
6132	Green PVC nylon reinforced	640 LONG x 560 HIGH x 147 WIDE

Catalogue Number	381974
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**/ CARRY BAG FOR SHORTING CLUSTER KIT**

Reference	Material	Size
EBB-18507	Green PVC nylon reinforced	850mm LONG x 300mm HIGH x 147mm WIDE

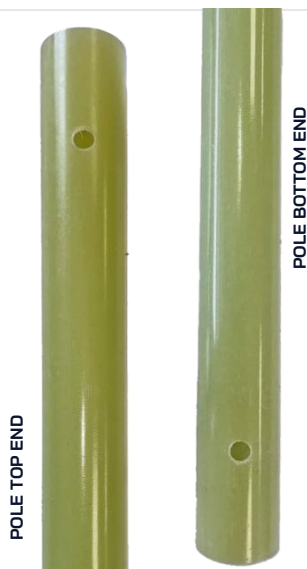
Catalogue Number	383025
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PENTA Electrical Safety Products offers a range of operating poles suitable for use up to 66kV in accordance with ENA Technical Specification 41-21. These typically comprise 4ft (1.22m) sections poles, which can be interconnected to form the required length on site, comprising bottom (with a handgrip), intermediate and top sections.

There are two Industry standard pole types, the P&B style and the Bowthorpe Style sections. PENTA Electrical Safety Products are able to supply both styles and these are compatible with a large range of sockets and heads detailed in this catalogue.

**Advantages**

- **Lightweight**
- **High torsional and bending strength**
- **Low deflection values**
- **Engineered precision joints to minimise flexing**
- **Easy interconnection in 4ft lengths**
- **Extra-long buttons for easy operation**
- **High electrical resistance values**
- **Alternative lengths are available for special applications**

**/ P&B STYLE 4ft (1.22m) TOP POLE SECTION**

Reference	Material	Length	Use with	Weight
EBR-18101/4	Glass cloth reinforced epoxy resin tubing	4ft (1.22m)	P&B Style Intermediate and Bottom Poles	0.70kg

Catalogue Number	383121
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### / P&B STYLE 4ft (1.22m) INTERMEDIATE POLE SECTION

Reference	With Grip	Material	Length	Use with	Weight
EAR-18103/1	No	Glass cloth reinforced epoxy resin tubing	4ft (1.22m)	P&B Style Top, Inter., and Bottom Poles	0.70kg
EAR-18103/3	Yes				

Catalogue Number	
382929 ( EAR-18103/1 )	382931 ( EAR-18103/3 )



### / P&B STYLE 4ft (1.22m) BOTTOM POLE SECTION

Reference	With Grip	Material	Length	Use with	Weight
EAR-18103/2	Yes	Glass cloth reinforced epoxy resin tubing	4ft (1.22m)	P&B Style Top and Intermediate Poles	0.70kg
EAR-18103/4	No				

Catalogue Number	
382930 ( EAR-18103/2 )	382932 ( EAR-18103/4 )



### / BOWTHORPE STYLE 4ft (1.22m) TOP POLE SECTION

Reference	Material	Length	Use with	Weight
EBR-18163	Glass cloth reinforced epoxy resin tubing	4ft (1.22m)	Bowthorpe Style Intermediate & Bottom Pole Sections	0.70kg

Catalogue Number
380904



## DISTRIBUTION LINE EARTHING EQUIPMENT OPERATING POLES



### / BOWTHORPE STYLE 4ft (1.22m) INTERMEDIATE POLE SECTION

Reference	Material	Length	Use with	Weight
EBR-18161	Glass cloth reinforced epoxy resin tubing	4ft (1.22m)	Bowthorpe Style Top & Bottom Pole Sections	0.70kg

Catalogue Number  
373197



### / BOWTHORPE STYLE 4ft (1.22m) BOTTOM POLE SECTION

Reference	With Grip	Material	Length	Use with	Weight
EBR-18162/1	No	Glass cloth reinforced epoxy resin tubing	4ft (1.22m)	Bowthorpe Style Intermediate & Top Pole Sections	0.70kg
EBR-18162/2	Yes				

Catalogue Number

380903

( EBR-18162/1 )

389546

( EBR-18162/2 )



### / RAIN SHIELD FOR OPERATING POLES

Fits on to any standard 4ft Pole section. Protects Engineers against conductive paths caused by rainwater.

Heavy Duty Black pvc.

Reference	Catalogue Number
EBR-14502	380902



### / GOLF TYPE EARTHING BAG

Suitable for carrying up to five 4ft operating poles with small outer pocket for housing operating sockets, black shoulder strap and Velcro fastening.

Reference	Catalogue Number	Material	Size
EBB-14510	383019	Re-inforced green PVC	1390 Long x 150 High x 240 Wide



## DISTRIBUTION LINE EARTHING EQUIPMENT

### OPERATING POLE SOCKET & HEADS

Distribution kits can be supplied with a wide range of operating sockets and heads. Operating sockets should be matched with both the Operating Pole style and operating screw type of the Line End clamp.

#### Advantages

- **Lightweight**
- **Engineered precision to ensure smooth operation**
- **Easy fit to Bowthorpe Style Top Section Pole**
- **Anti corrosion parts**

## / P331 OPERATING SOCKET

Torsional type spring loaded socket suitable for long and short taper type op-screws on Bowthorpe Style poles.

#### / TECHNICAL SPECIFICATION

Reference	Pole Type	Op-screw type	Weight
<b>EFS-18314</b>	Bowthorpe Style	Long or Short Taper	0.31kg

Catalogue Number
380905

\*Also suitable for rail applications.

PADS Number	0091/020526
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## / P3313 OPERATING SOCKET

Suitable for removal and fitting of LEL and S&E fuse isolators.

Reference	Pole Type	Op-screw type	Weight
<b>EFS-18319</b>	Bowthorpe Style	LEL or S&E Fuse Isolators	0.29kg

Catalogue Number
383311

\*Also suitable for rail applications.

PADS Number	0091/002477
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## / PB331 OPERATING SOCKET

Torsional type spring loaded socket.

Reference	Pole Type	Op-screw type	Weight
<b>EFS-16637</b>	P&B Style	Long or Short Taper	0.31kg

Catalogue Number
383307





### / RT/TL SOCKET ASSEMBLY

Orange/white indicator to show retention and release of clamp.

Reference	Pole Type	Op-screw type	Weight
EFS-18304	Bowthorpe Style	Ring type	0.37kg

Catalogue Number  
383308



### / HOOK TYPE SOCKET

Spring tension hook type socket.

Reference	Pole Type	Op-screw type
FA3714-A	Bowthorpe Style	Ring type

Catalogue Number  
391078

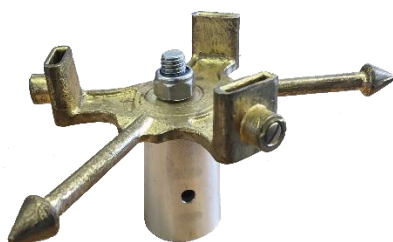


### / DH1A APPLICATOR HEAD

Aluminium dispenser head for CE62 Line End clamps.

Reference	Pole Type	Op-screw type	Weight
EFD-16731/2	Bowthorpe Style	CE62 Only	0.51kg

Catalogue Number  
392972



### / DISPENSER HEAD

High tensile brass dispenser head for CE62 Line End clamps.

Reference	Catalogue Number	Pole Type	Op-screw type
EFT-20126	383387	Bowthorpe Style	CE62 Only





## DISTRIBUTION LINE EARTHING EQUIPMENT OPERATING POLE SOCKET & HEADS



### / OL1 OPERATING SOCKET

Spring loaded bayonet socket for clamp application in any direction.

Reference	Pole Type	Op-screw type	Weight
FA1200-B	P&B Style	Long taper	0.23kg

Catalogue Number
383867

### / S9D/ ESI-S1 OPERATING SOCKET

Quick action sliding Socket supports clamps being applied in an upward direction. Ideally suited to use with the S9B clamp with a short taper op-screw.

#### / TECHNICAL SPECIFICATION

Reference	Pole Type	Op-screw type	Weight
FA1097-B	P&B Style	Short taper	0.30kg

Catalogue Number
383866



### / CEA/ESI-S2 OPERATING SOCKET

Spring loaded bayonet socket for clamp application in any direction.

#### / TECHNICAL SPECIFICATION

Reference	Pole Type	Op-screw type	Weight
EFS-11203	P&B Style	Short taper	0.33kg

*\*Also suitable for rail applications.*

PADS Number	0054/063207
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Catalogue Number
383305





### / SPLASH PLATE

Suitable for protection from arc splash when applying live (hot) line clamps.

Reference	Catalogue Number	Pole Type	Weight
EFS-18339	390155	Bowthorpe Style	0.63kg



### / LIVE LINE TAPPING SOCKET

Suitable for the fitting and removal of live (hot) line taps.

Reference	Catalogue Number	Pole Type	Op-screw Type
EFS-18326	383313	Bowthorpe Style	Live Line Taps



### / GS1 OPERATING SOCKET

To suit square end op-screws.

Reference	Catalogue Number	Pole Type	Op-screw Type
EFS-12541	383306	P&B Style	Square End



### / DIN BAYONET SOCKET

Suitable for fitting and removal of clamps with short taper style DIN op-screws.

Reference	Catalogue Number	Pole Type	Pole Taper Type
EFS-18362 (Spring loaded)	383318	Bowthorpe Style	DIN Bayonet
EFS-18369 (Non-sprung)	383319		



Fuse heads should be matched with both the pole style and fuse.  
For recommendation, please contact us.



### / P3437 UNIVERSAL POLE HEAD

Suitable for fuse cut-outs die-cast for strength, durability and accuracy. Compatible for use on Bowthorpe style top pole.

Reference	Pole Type	Fuse Type	Weight
EMS-18368	Bowthorpe Style	Universal Cut-Outs	0.77kg

Catalogue Number  
380906



### / SIDE SPINDLE FUSE HEAD

Suitable for Brush or J&P fuses.

Reference	Pole Type	Fuse Type	Weight
EFS-18330	Bowthorpe Style	Brush or J&P Fuses	0.15kg

Catalogue Number  
383314



### / P3380 J&P FUSE CUT-OUT HEAD

Suitable for fitting and removal of J&P fuse cut-outs, die-cast for strength, durability and accuracy. Compatible for use on Bowthorpe style top pole.

Reference	Pole Type	Fuse Type	Weight
EMS-18372	Bowthorpe Style	J&P Fuses	0.34kg

Catalogue Number  
383704



### / P3458 FUSE CUT-OUT HEAD

Suitable for Brush fuse cut-out and isolating links, die-cast for strength, durability and accuracy. Compatible for use on Bowthorpe style top pole.

Reference	Pole Type	Fuse Type	Weight
EMS-18317	Bowthorpe Style	Brush	0.30kg

Catalogue Number
383683



### / JBONDEN PMR RE-CLOSER HEAD

Fully insulated Re-Closer Head.

Reference	Catalogue Number	Pole Type	Application
EFS-18323	390152	Bowthorpe Style	Re-closer



### / JB1030 FUSE HEAD

Suitable for fitting and removal of JB1030 LV Yorkshire fuses.

Reference	Pole Type	Fuse Type	Weight
EFS-18334	Bowthorpe Style	JB1030 LV Yorkshire Fuses	0.34kg

Catalogue Number
383315



## DISTRIBUTION LINE EARTHING EQUIPMENT POLE ADAPTOR HEADS



### / AEI HENLEY FUSE HEAD

Suitable for the fitting and removal of Henley type fuses.

Reference	Catalogue Number	Pole Type	Fuse Type
EMS-18301	383676	Bowthorpe Style	Henley

This range of adapters allows the interchanging of Sockets and Heads between different styles of Pole.



### / MACH OP-SOCKET ADAPTER

Allows the fitting of P&B Sockets or Heads to a Bowthorpe style top pole.

Reference	Pole Type	Fit to	Weight
4927	Bowthorpe Style	P&B Sockets & Heads	0.26kg

\*Also suitable for rail applications.

PADS Number	0054/003008
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Catalogue Number
381961

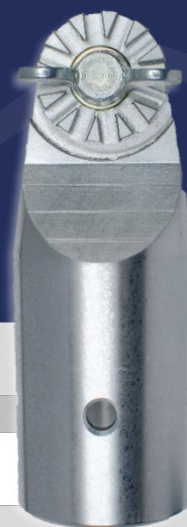
### / UNIVERSAL HEAD ADAPTER

Suitable for use with universal (rising sun) line fitting tools.

Aluminium or glass filled nylon (insulated) versions available.

#### / TECHNICAL SPECIFICATION

Reference	Catalogue Number	Pole Type	Fit to	Weight
EFS-18315 (Aluminium)	383309	Bowthorpe Style	Universal tools	0.44kg
EFS-18315/1 (Nylon)	383310			







### / UNIVERSAL ADAPTER CASTELLATED HEAD

Suitable for use with universal (rising sun) line fitting tools.

Reference	Catalogue Number	Pole Type	Fuse Type
EFR-18360 (Aluminium)	390148	Bowthorpe Intermediate	Universal tools
EFS-18360/1 (Nylon)	390156		



### / TELE ROD UNI-ADAPTOR

Adaptor for use with a Tele Rod or Universal Head adaptor (EFS-18315) to allow fitting of Bowthorpe style sockets.

Reference	Catalogue Number	Pole Type	Fit to
EFS-18321	383312	Universal Head	Bowthorpe Heads



### / MALE SPIGOT ADAPTOR

Allows the fitting of Bowthorpe style sockets & heads to P&B top pole.

Reference	Catalogue Number	Pole Type	Fit to:
EFS-13376	390149	P&B Style	Bowthorpe Sockets & Heads



## DISTRIBUTION LINE EARTHING EQUIPMENT

### POLE ADAPTOR HEADS



#### / VOLTAGE DETECTOR REPLACEMENT HEAD

Insulated adaptor to fit a Metrohm Tester to a Bowthorpe style top pole.

Reference	Catalogue Number	Pole Type	Fit to
EMS-18380	393054	Bowthorpe Style	Metrohm Voltage Tester



#### / HEX TYPE SOCKET/HEAD ASSY

For application of clamps with hexagonal (12mm A/F) operating screws employing spring-loaded locking device operated by push button upon the light polymer socket.

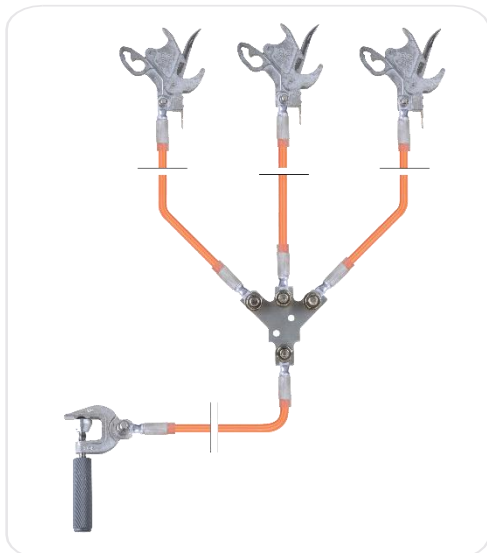
Reference	Catalogue Number	Pole Type	Op-screw type	Weight
EFS-18352	383317	Bowthorpe Style	Hexagonal 12mm A/F	0.2kg



## DISTRIBUTION LINE EARTHING EQUIPMENT

### EARTHING KITS

Distribution Line Earthing kits can be fully customised depending upon requirements, illustrated are various standard kits for reference but please contact us if your requirement is not shown specifically.

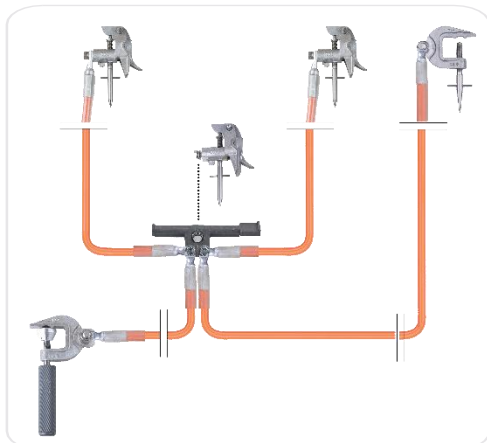


#### / 11kA SNAP-ON EARTHING KIT

Comprising : 3 x CE62 Line End Clamps  
3 x 3m 120sqmm Orange Aluflex Leads  
1 x Type-A Terminal Plate  
1 x 15m 50sqmm Orange Aluflex Lead  
1 x S9A Short Handle Earth End Clamp

Short Circuit Rating : 12.5kA/ 1s (Phase to Phase)

Reference	Catalogue Number
MISC-00006	393204



#### / DLE KIT WITH CROSS ARM CLAMP

Comprising: 3x S9B Short Taper Line End Clamps  
3 x 3m 120sqmm Orange Aluflex Leads  
1 x Cluster Bar Type DLE/ CAC  
1 x 15m 50sqmm Orange Aluflex Lead  
1x S9A Short Handle Earth End Clamp  
1 x S9A Pointed Tip Cross Arm Clamp  
1 x 3m 50sqmm Orange Aluflex Lead

Short Circuit Rating: 20kA/1s (phase to phase)

Reference	Catalogue Number
MISC-00060	393210



#### / DLE2/A EARTHING KIT

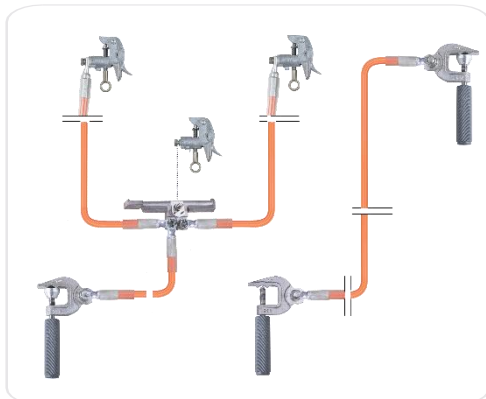
Comprising: 3 x S9B Short Taper Line End Clamps  
3 x 3m 50sqmm Clear Aluflex Leads  
1 x Type C Terminal Plate  
1 x 11m 50sqmm Clear Aluflex Lead  
1x Split Connector  
1 x 4ft P&B Top Pole  
1 x 4ft P&B Bottom Pole  
1 x S9D Socket  
1 x Rain Shield  
1 x Heavy Duty PVC Carrying Bag

Reference	Catalogue Number
MISC-00066	391512



## DISTRIBUTION LINE EARTHING EQUIPMENT

### EARTHING KITS



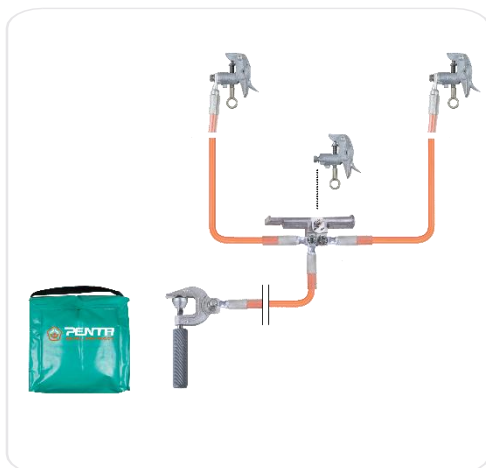
#### / 33kV KIT WITH S9N RING TYPE LINE END CLAMPS

Comprising:

- 3 x S9B Ring Type Line End Clamps
- 2 x 3m 120sqmm Arctic Orange Aluflex Leads
- 1 x Cluster Bar
- 1 x 15m 50sqmm Arctic Orange Aluflex Leads
- 2 x S9A Short Handle Earth End Clamps with Rocker Block
- 1 x S9A Short Handle Clamp with Pointed Tip

Short Circuit Rating: 20kA/1s (phase to phase)

Reference	Catalogue Number
MISC-00103	391541



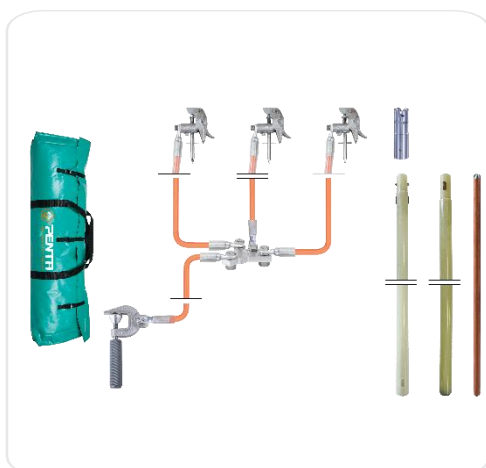
#### / DLE KIT S9B/RT & NEW CLUSTER

Comprising:

- 3 x S9B Ring Type Line End Clamps
- 3 x 3m 120sqmm Arctic Orange Aluflex Leads
- 1 x Cluster Bar
- 1 x 15m 50sqmm Arctic Orange Aluflex Lead
- 1 x S9A Short Handle Earth End Clamp
- 1 x pvc Carrying Bag

Short Circuit Rating: 20kA/1s (phase to phase)

Reference	Catalogue Number
MISC-00022	391472



#### / DLE2/B EARTHING KIT

Comprising:

- 3 x S9B Short Taper Line End Clamps
- 3 x 3m 120sqmm Arctic Orange Aluflex Leads
- 1 x Type-A Terminal Plate
- 1 x 7m 50sqmm Arctic Orange Aluflex Lead
- 1 x S9A Short Handle Earth End Clamp
- 1 x PVC Carrying Bag
- 1 x 4ft Top Section Pole
- 1 x 4ft Bottom Section Pole
- 1 x P331 Socket
- 1 x Earth Rod

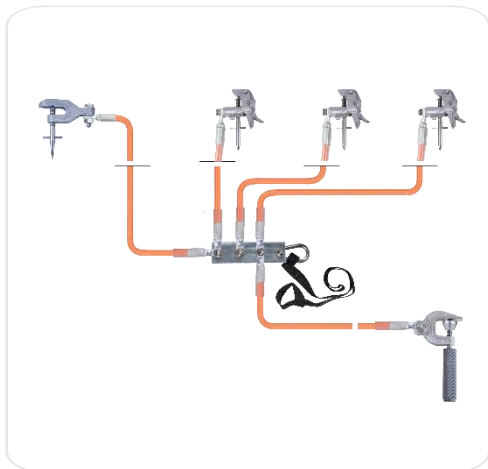
Short Circuit Rating: 20kA/1s (phase to phase)

Reference	Catalogue Number
MISC-00169	391593



## DISTRIBUTION LINE EARTHING EQUIPMENT

### EARTHING KITS



#### / 33Kv DLE KIT S9B SHORT TAPER TYPE LINE END CLAMPS

Comprising:

- 3 x S9B Short taper Line End Clamps
- 3 x 3m 120sqmm Arctic Orange Aluflex Leads
- 1 x Type C Terminal Plate
- 1 x 15m 50sqmm Arctic Orange Aluflex Lead
- 1 x S9A Short Handle Earth End Clamp
- 1 x CE10 Cross Arm Clamp
- 1 x 3m 50sqmm Arctic Orange Aluflex Lead

Short Circuit Rating: 20kA/1s (phase to phase)

Reference	Catalogue Number
MISC-00018	391468



#### / DISTRIBUTION KIT FOR KPLC

Comprising:

- 3 x S9B Short Taper Clamps
- 3 x 4m 95sqmm Leads Clear Aluflex Leads
- 1 x Type D Terminal Plate
- 1 x 12m 95sqmm Clear Aluflex Lead
- 1 x S9A Earth End Clamp
- 1 x Carrying Bag

Short Circuit Rating: 20kA/1s (phase to phase)

Reference	Catalogue Number
MISC-00182	384024



#### / LV EARTHING KITS

LV Earthing Kits can be applied by hand using the S9B Long Handle clamps. Kits can be provided for up to 5 cables (three Phase, Neutral and Earth Line End clamps), and are supplied including a heavy duty pvc carry bag for protection of the equipment. The length of the 50sqmm leads is usually 1.5m, although these can be made to any length/colour depending upon requirements.

Comprising:

- 1 x PVC Bag for Shorting Kit
- 4 x 50sqmm 1.5m Arctic Orange Leads
- 5 x S9BS/A/LH/105 Clamp Assembly

Short Circuit Rating: 20kA/1s (phase to phase)

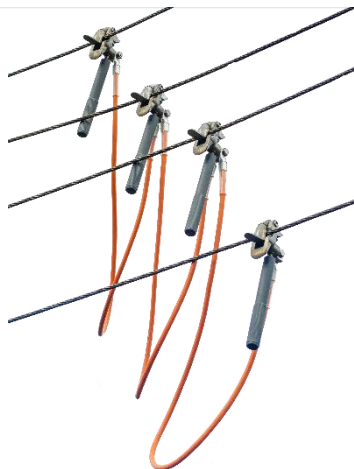
Reference	Catalogue Number
MISC-00029	391478





## DISTRIBUTION LINE EARTHING EQUIPMENT

### EARTHING KITS



#### / LV EARTHING KITS

Comprising: 3 x 50sqmm 1.5m Arctic Orange Leads  
4 x S9BS/A/LH/105 Clamp Assembly

Reference	Catalogue Number
MISC-00017	391467

The PENTA Electrical Safety Products range of tree pruning equipment is ideal for removing branches and tree debris from near overhead lines.



#### / SAW PRUNING HEAD ASSEMBLY

The curved 6-TPI blade is 355mm long and manufactured from lacquered stainless steel to ensure long service life.

Reference	Catalogue Number	Pole Type
EFS-18324	393009	Bowthorpe Style



#### / BRANCH CLEARANCE SAW

Suitable for fitment to middle section Bowthorpe style poles. The curved 6-TPI blade is 355mm long and manufactured from lacquered stainless steel to ensure long service life.

Reference	Catalogue Number	Pole Type
EFD-18404	392977	Bowthorpe Intermediate



### / TREE PRUNING HEAD

High quality steel side action cutting blade. Suitable for fitting upon a standard Bowthorpe style top section operating pole. Able to cut branches up to 44mm diameter. Fitted with a nylon operating cord, for ease of use from ground level.

Reference	Catalogue Number	Pole Type
SK130296-0/1	393280	Bowthorpe Style



### / PRUNING SAW ADAPTER

Reference	Catalogue Number	Pole Type	Application
EMS-18320	383685	Bowthorpe Style	Allows fitting of Pruning Saw



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Company Number : 10527362 –Registered Office : England & Wales - VAT Number : GB 289 988 694